

**Amendments to the Specification:**

Please replace the paragraph beginning on page 5, line 1, with the following rewritten paragraph:

In order to avoid the formation of bubbles in one-component polyurethane sealants and adhesives there are a variety of possibilities. On the one hand some or all of the isocyanate end groups of the prepolymer can be converted to alkoxy silane end groups by reacting them with, for example, an aminoalkyl-alkoxy silane. This produces an alkoxy silane-terminal prepolymer, which likewise cures by contact with moisture via hydrolysis of the alkoxy silane groups and subsequent condensation of the silanol groups to form siloxane moieties. This curing mechanism does not form CO<sub>2</sub>, and accordingly there are fewer bubbles formed, or none. Crosslinking via alkoxy silane groups does, however, lead to products having a low ~~breaking~~ elongation at break and low strengths. EP 1 093 482 describes polyurethanes based on polyols of high molecular weight, with a narrow molar weight distribution and an OH functionality in the vicinity of 2. In order to avoid bubbles it is possible for some or all of the isocyanate end groups of the prepolymer to be reacted with organosilanes such as aminoalkyl-alkoxy silanes, for example. As already mentioned, it is not possible in this way to formulate polyurethanes having high elongations and strengths. Accordingly the sole example of that patent, a system ~~which~~ that cures predominantly by way of alkoxy silanes, has a tensile strength of only 0.49 MPa with a ~~breaking~~ elongation at break of 276%.

Please replace the paragraph beginning on page 6, line 7, with the following rewritten paragraph:

It was an object of the present invention to provide compositions which, starting from only one or a few high molecular weight polyurethane prepolymers, cover a large spectrum of mechanical strengths, and which have additional advantages over the prior art. Thus on the

one hand the desire is for products which combine a low elasticity modulus, high elongation and good resilience with a very dry surface and are therefore suitable as construction sealants for the sealing of joints; on the other hand there is a need for highly flexible products which cure quickly and without bubbles, have high to very high mechanical strengths and are therefore suitable as adhesives for all kinds of industrial applications. These compositions ought at the same time to have a very low processing viscosity, thereby allowing the formulation of products which can be applied with relatively little force applied, which exhibit short cut-off string ~~rupture~~ on application (so that the surroundings are not soiled with the product when the application tip is placed down and drawn away), and contain a small amount or none at all of solvents and plasticizers, which is advantageous not only for the adhesion properties of the product but also from environmental standpoints, since not only the solvents (VOCs = volatile organic compounds) but also the plasticizers, generally phthalate compounds, are not unproblematic for the environment. Furthermore, any plasticizers present tend to migrate from the composition when applied to porous substrates such as natural stone slabs and when overcoated with paints. As a result it is possible, for example, for unattractive discolorations of the substrate to appear alongside a joint, or a coating becomes soft and tacky.

Please replace the paragraph beginning on page 7, line 10, with the following rewritten paragraph:

With the combination described here of specific, high molecular weight polyurethane prepolymer prepared starting from specific linear, long-chain polyoxyalkylene polyols with a low degree of unsaturation and polyaldimines it is possible, by varying and combining different polyaldimines with only a few prepolymers, to formulate different highly flexible products having a very broad spectrum of mechanical strength (tensile strength, for example, in the range from approximately 1 to more than 20 MPa) and having ~~breaking~~ elongations at

break of up to more than 1000%, these products being stable on storage in appropriate packaging in the absence of moisture, having a low processing viscosity, curing rapidly and without bubbles on contact with moisture, and having a very dry surface in the cured state.

Please replace the paragraph beginning on page 10, line 8, with the following rewritten paragraph:

The polyol A1 is a linear polyoxyalkylene polyol having a total degree of unsaturation of  $< 0.04$  meq/g, preferably  $< 0.02$  meq/g and more preferably  $< 0.017$  meq/g. In one preferred embodiment, the polyol A1 has a molecular weight of from 2000 to 30 000 g/mol. In another embodiment, the polyol A1 has a molecular weight of from 2000 to 20 000 g/mol.

Please replace the paragraph beginning on page 22, line 1, with the following rewritten paragraph:

Tensile strength, ~~breaking~~-elongation at break and elasticity modulus at 0.5-5% elongation were determined on films cured for 7 days at 23°C and 50% relative humidity in accordance with DIN EN 53504 (traction speed: 200 mm/min).

Please replace the paragraph beginning on page 22, line 14, with the following rewritten paragraph:

The ~~expression-extrusion~~ force was determined on aluminum cartridges having a diameter of 45 mm, the sealant being pressed at the tip of the cartridge through an opening of 3 mm. ~~Expression-Extrusion~~ was carried out by a tensile testing machine at a speed of 60 mm/min.

Please replace the paragraph beginning on page 22, line 20, with the following rewritten paragraph:

~~String-rupture~~Cut-off string was determined by causing a cylindrical penetration element with a diameter of 2 cm to penetrate to a depth of 0.5 cm into the sealant (film thickness: 1 cm, temperature 20°C) and extracting it again after about 1 second at constant

speed (25 cm in 4 seconds). The length of the string of sealant remaining on the penetration element, defined as ~~string-rupture~~cut-off string, was measured with a ruler to an accuracy of 1 mm. The procedure was repeated three times and the mean value of the measurements was determined as the result.

Please replace the paragraph beginning on page 22, line 35, with the following rewritten paragraph:

The curing rate of ~~cure-through volume~~ was determined at 23°C and 50% relative humidity on a PTFE substrate.

Please replace the paragraph beginning on page 30, line 6, with the following rewritten paragraph:

Table 1

| Example   | 1    | 2    | 3    | 4    | 5<br>compara-<br>tive | 6<br>compara-<br>tive |
|---|------|------|------|------|-----------------------|-----------------------|
| Prepolymer  | P1   | P1   | P1   | P1   | P2                    | P1                    |
| Polyaldimine(s),<br>ratio (pbw/pbw)                                 | A1   | A2   | A3   | A4   | A4                    | —                     |
| NCO content<br>(% by weight)  | 2.00 | 2.00 | 2.00 | 2.00 | 2.06                  | 2.00                  |
| Viscosity before<br>storage (Pa·s)                                  | 28   | 27   | 26   | 27   | 91                    | 28                    |
| Viscosity after<br>storage (Pa·s)                                   | 32   | 33   | 29   | 32   | 96                    | 31                    |
| Skinning time<br>(min.)   | 52   | 33   | 43   | 35   | 30                    | 600                   |
| Bubble formation  | none | none | none | none | none                  | many                  |
| Tensile strength<br>(MPa)   | 4.2  | 8.3  | 8.8  | 12.1 | 4.9                   | n.m.                  |
| <del>Breaking</del><br><u>elongation</u><br><del>at break</del> (%) | 1000 | 1300 | 1300 | 1300 | 1400                  | n.m.                  |
| Elasticity<br>modulus 0.5-5%<br>(MPa)                               | 1.6  | 1.9  | 2.0  | 13.1 | 15.6                  | n.m.                  |

(n.m. = not measurable)

Please replace the paragraph beginning on page 31, line 7, with the following rewritten paragraph:

Table 2

| <b>Example</b>   | <b>7</b> | <b>8 comparative</b> |
|--|----------|----------------------|
| Prepolymer   | P3       | P4                   |
| Polyaldimine   | A4       | A4                   |
| NCO content (% by weight)                              | 3.61     | 3.59                 |
| Viscosity before storage (Pa·s)                        | 37       | 34                   |
| Viscosity after storage (Pa·s)                         | 38       | 35                   |
| Skinning time (min.)                                   | 32       | 30                   |
| Bubble formation                                       | none     | none                 |
| Tensile strength (MPa)                                 | 11.3     | 7.2                  |
| <del>Breaking elongation</del> Elongation at break (%) | 710      | 700                  |
| Elasticity modulus 0.5-5% (MPa)                        | 26.6     | 28.8                 |

Please replace the paragraph beginning on page 33, line 1, with the following rewritten paragraph:

Table 3

| Example  | 9             | 10<br>compara-<br>tive | 11<br>compara-<br>tive | 12            | 13            | 14            | 15<br>compara-<br>tive | 16<br>compara-<br>tive |
|--|---------------|------------------------|------------------------|---------------|---------------|---------------|------------------------|------------------------|
| Prepolymer   | P1            | P5                     | P5                     | P1            | P1            | P1            | P6                     | P6                     |
| Polyaldimine(s), ratio<br>(pbw/pbw)                          | A2/A5,<br>2/1 | A2                     | —                      | A2/A5,<br>7/1 | A6/A5,<br>7/1 | A4/A5,<br>7/1 | A2                     | —                      |
| Total functionality prepolymer                               | 2.0           | 2.3                    | 2.3                    | 2.0           | 2.0           | 2.0           | 2.1                    | 2.1                    |
| Total functionality<br>polyaldimines                         | 2.3           | 2.0                    | (2.0)                  | 2.1           | 2.1           | 2.1           | 2.0                    | (2.0)                  |
| NCO content (% by weight)                                    | 2.00          | 2.30                   | 2.30                   | 2.00          | 2.00          | 2.00          | 2.22                   | 2.22                   |
| Viscosity before storage (Pa·s)                              | 30            | 87                     | 92                     | 28            | 25            | 28            | 48                     | 49                     |
| Viscosity after storage (Pa·s)                               | 38            | 108                    | 105                    | 35            | 29            | 32            | 63                     | 58                     |
| Skinning time<br>(min.)                                      | 24            | 12                     | 240                    | 23            | 20            | 23            | 15                     | 320                    |
| Bubble formation   | none          | none                   | some                   | none          | none          | none          | none                   | many                   |
| Tensile strength (MPa)                                       | 2.3           | 2.6                    | 2.3                    | 4.1           | 2.8           | 5.0           | 3.7                    | n.m.                   |
| <del>Breaking elongation</del><br>Elongation<br>at break (%) | 270           | 230                    | 190                    | 620           | 640           | 450           | 400                    | n.m.                   |
| Elasticity modulus 0.5-5%<br>(MPa)                           | 2.4           | 3.0                    | 5.2                    | 2.0           | 1.4           | 9.4           | 3.0                    | n.m.                   |

(n.m. = not measurable)

Please replace the paragraph beginning on page 34, line 18, with the following rewritten paragraph:

Table 4

| Example  | 17   | 18<br>comparative                |
|--|------|----------------------------------|
| Prepolymer   | P7   | P7                               |
| Polyaldimine(s), ratio (pbw/pbw)                       | A4   | —                                |
| NCO content<br>(% by weight)                           | 2.12 | 2.12                             |
| Viscosity before storage (Pa·s)                        | 11   | 11                               |
| Viscosity after storage (Pa·s)                         | 12   | 12                               |
| Skinning time (min.)                                   | 37   | > 600                            |
| Bubble formation                                       | none | some                             |
| Tensile strength (MPa)                                 | 10.2 | remains tacky,<br>pasty;<br>n.m. |
| <del>Breaking elongation</del> Elongation at break (%) | 1300 |                                  |
| Elasticity modulus 0.5-5% (MPa)                        | 10.3 |                                  |

(n.m. = not measurable)

Please replace the paragraph beginning on page 35, line 21, with the following rewritten paragraph:

Table 5

| Example  | 19     | 20            | 21<br>comparative               |
|--|--------|---------------|---------------------------------|
| Prepolymer   | P8     | P8            | P8                              |
| Polyaldimine(s), ratio (pbw/pbw)                       | A4     | A4/A5,<br>7/1 | —                               |
| NCO content<br>(% by weight)                           | 0.88   | 0.88          | 0.88                            |
| Viscosity before storage (Pa·s)                        | 58     | 66            | 60                              |
| Viscosity after storage (Pa·s)                         | 72     | 82            | 70                              |
| Skinning time (min.)                                   | 52     | 48            | > 600                           |
| Bubble formation                                       | none   | none          | some                            |
| Tensile strength (MPa)                                 | 4.2    | 4.7           | remains soft,<br>pasty;<br>n.m. |
| <del>Breaking elongation</del> Elongation at break (%) | > 1300 | 1040          |                                 |
| Elasticity modulus 0.5-5% (MPa)                        | 2.9    | 2.4           |                                 |

(n.m. = not measurable)

Please replace the paragraph beginning on page 36, line 1, with the following rewritten paragraph:

Table 6

| Example                                | 22   | 23   | 24   | 25<br>compara-<br>tive | 26            | 27<br>compara-<br>tive | 28            | 29<br>compara-<br>tive | 30            | 31<br>compara-<br>tive |
|--|------|------|------|------------------------|---------------|------------------------|---------------|------------------------|---------------|------------------------|
| Prepolymer                             | P9   | P9   | P9   | P9                     | P10           | P10                    | P11           | P11                    | P12           | P12                    |
| Polyaldimine(s),<br>ratio (pbw/pbw)    | A2   | A3   | A4   | —                      | A2/A5,<br>7/1 | —                      | A2/A5,<br>7/1 | —                      | A2/A5,<br>3/1 | —                      |
| NCO content<br>(% by weight)           | 3.70 | 3.70 | 3.70 | 3.70                   | 3.76          | 3.76                   | 4.53          | 4.53                   | 5.01          | 5.01                   |
| Viscosity before<br>storage (Pa·s)     | 36   | 35   | 36   | 38                     | 43            | 46                     | 56            | 58                     | 46            | 48                     |
| Viscosity after<br>storage (Pa·s)      | 43   | 37   | 40   | 43                     | 50            | 51                     | 65            | 64                     | 55            | 52                     |
| Skinning time<br>(min.)                | 41   | 51   | 42   | 360                    | 45            | 420                    | 42            | 360                    | 41            | 480                    |
| Bubble formation                       | none | none | none | very<br>many           | none          | very<br>many           | none          | very<br>many           | none          | very<br>many           |
| Tensile strength<br>(MPa)              | 15.0 | 14.5 | 17.0 | n.m.                   | 14.1          | n.m.                   | 15.6          | n.m.                   | 18.4          | n.m.                   |
| Breaking<br>elongation<br>at break (%) | 790  | 770  | 810  | n.m.                   | 500           | n.m.                   | 600           | n.m.                   | 330           | n.m.                   |
| Elasticity<br>modulus 0.5-5%<br>(MPa)  | 5.8  | 4.1  | 33.1 | n.m.                   | 5.3           | n.m.                   | 10.5          | n.m.                   | 40.0          | n.m.                   |

(n.m. = not measurable)



Please replace the paragraph beginning on page 39, line 23, with the following  
rewritten paragraph:

Table 7

| <b>Example</b>   | <b>32</b> | <b>33<br/>compara-<br/>tive</b> | <b>34<br/>compara-<br/>tive</b> |
|--|-----------|---------------------------------|---------------------------------|
| Surface quality after curing                           | dry       | dry                             | tacky                           |
| Skinning time (min.)                                   | 250       | 90                              | 135                             |
| Volume curing rate (mm/day)                            | 1.8       | 2.4                             | 2.5                             |
| Shore A hardness                                       | 47        | 44                              | 18                              |
| <del>String rupture</del> Cut-off string (mm)          | 28        | 40                              | 15                              |
| <del>Expression</del> Extrusion force (N)              | 443       | 558                             | 271                             |
| Storage stability                                      | OK        | OK                              | Ok                              |
| Tensile strength (MPa)                                 | 2.2       | 3.0                             | 0.3                             |
| <del>Breaking elongation</del> Elongation at break (%) | 880       | 1080                            | 250                             |
| Stress at 100% elongation (MPa)                        | 0.98      | 0.81                            | 0.18                            |